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RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/762,105

DATE: 10/25/2002  
 TIME: 16:16:29

Input Set : A:\09762105.txt  
 Output Set: N:\CRF4\10252002\I762105.raw

4 <110> APPLICANT: Rutgers, The State University of New Jersey  
 5 Maliga, Pal  
 6 Kuroda, Hiroshi  
 7 Khan, Muhammad Sarwar  
 9 <120> TITLE OF INVENTION: Translation Control Elements for  
 10 High-Level Protein Expression in the Plastids of Higher  
 11 Plants and Methods of Use Thereof  
 14 <130> FILE REFERENCE: Rut 00-0010  
 16 <140> CURRENT APPLICATION NUMBER: 09/762,105  
 17 <141> CURRENT FILING DATE: 2001-04-23  
 19 <150> PRIOR APPLICATION NUMBER: PCT/US99/17806  
 20 <151> PRIOR FILING DATE: 1999-08-03  
 22 <150> PRIOR APPLICATION NUMBER: 60/138,764  
 23 <151> PRIOR FILING DATE: 1999-06-11  
 25 <150> PRIOR APPLICATION NUMBER: 60/095,163  
 26 <151> PRIOR FILING DATE: 1998-08-03  
 28 <150> PRIOR APPLICATION NUMBER: 60/095,167  
 29 <151> PRIOR FILING DATE: 1998-08-03  
 31 <150> PRIOR APPLICATION NUMBER: 60/112,257  
 32 <151> PRIOR FILING DATE: 1998-12-15  
 34 <150> PRIOR APPLICATION NUMBER: 60/131,611  
 35 <151> PRIOR FILING DATE: 1999-04-29  
 37 <160> NUMBER OF SEQ ID NOS: 106  
 39 <170> SOFTWARE: FastSEQ for Windows Version 3.0  
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 42 <211> LENGTH: 227  
 43 <212> TYPE: DNA  
 44 <213> ORGANISM: Artificial Sequence  
 46 <220> FEATURE:  
 47 <223> OTHER INFORMATION: Synthetic sequence  
 49 <400> SEQUENCE: 1  
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 51 agggggcagg gatggctata ttctctgggag aattaaccga tcgacgtgca agcggacatt 120  
 52 tattttaaat tcgataattt ttgcaaaaac atttcgacat atttatttat tttattatta 180  
 53 tgagaatcaa tcctactact tctggttctg ggggtttccac ggctagc 227  
 55 <210> SEQ ID NO: 2  
 56 <211> LENGTH: 191  
 57 <212> TYPE: DNA  
 58 <213> ORGANISM: Artificial Sequence  
 60 <220> FEATURE:  
 61 <223> OTHER INFORMATION: Synthetic sequence  
 63 <400> SEQUENCE: 2  
 64 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60

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65 agggggcagg gatggctata tttctgggag aattaaccga tcgacgtgca agcggacatt      120
66 tattttaaat tcgataattt ttgcaaaaac atttcgacat atttatttat tttattatta      180
67 tgagagctag c                                                    191
69 <210> SEQ ID NO: 3
70 <211> LENGTH: 227
71 <212> TYPE: DNA
72 <213> ORGANISM: Artificial Sequence
74 <220> FEATURE:
75 <223> OTHER INFORMATION: Synthetic sequence
77 <400> SEQUENCE: 3
78 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
79 agggggcagg gatggctata tttctgggag aattaaccga tcgacgtgca agcggacatt      120
80 tattttaaat tcgataattt ttgcaaaaac atttcgacat atttatttat tttattatta      180
81 tgagaataaaa cccgacaaca agtggaaagt ggggtgccac ggctagc                227
83 <210> SEQ ID NO: 4
84 <211> LENGTH: 196
85 <212> TYPE: DNA
86 <213> ORGANISM: Artificial Sequence
88 <220> FEATURE:
89 <223> OTHER INFORMATION: Synthetic sequence
91 <400> SEQUENCE: 4
92 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
93 agggggcagg gatggctata tttctgggag ttacgtttcc acctcaaagt gaaatatagt      120
94 atttagttct ttctttcatt taatgcctat tggtgttcca aaagtccttt tccgaagtc     180
95 tggagaggaa gctagc                                                    196
97 <210> SEQ ID NO: 5
98 <211> LENGTH: 154
99 <212> TYPE: DNA
100 <213> ORGANISM: Artificial Sequence
102 <220> FEATURE:
103 <223> OTHER INFORMATION: Synthetic sequence
105 <400> SEQUENCE: 5
106 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
107 agggggcagg gatggctata tttctgggag ttacgtttcc acctcaaagt gaaatatagt      120
108 atttagttct ttctttcatt taatgcctgc tagc                                154
110 <210> SEQ ID NO: 6
111 <211> LENGTH: 195
112 <212> TYPE: DNA
113 <213> ORGANISM: Artificial Sequence
115 <220> FEATURE:
116 <223> OTHER INFORMATION: Synthetic sequence
118 <400> SEQUENCE: 6
119 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
120 agggggcagg gatggctata tttctgggag tcgagtagac cttgtgttg tgaaaattct      120
121 taattcatga gttgtaggga gggatttatg tcaccacaaa cagagactaa agcaagtgtt      180
122 ggattcaaa gctagc                                                    195
124 <210> SEQ ID NO: 7
125 <211> LENGTH: 159
126 <212> TYPE: DNA

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127 <213> ORGANISM: Artificial Sequence
129 <220> FEATURE:
130 <223> OTHER INFORMATION: Synthetic sequence
132 <400> SEQUENCE: 7
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134 agggggcagg gatggctata tttctgggag tcgagtagac cttgttggtg tgaataattct      120
135 taattcatga gttgtaggga gggatttatg tcagctagc                                159
137 <210> SEQ ID NO: 8
138 <211> LENGTH: 195
139 <212> TYPE: DNA
140 <213> ORGANISM: Artificial Sequence
142 <220> FEATURE:
143 <223> OTHER INFORMATION: Synthetic sequence
145 <400> SEQUENCE: 8
146 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
147 agggggcagg gatggctata tttctgggag tcgagtagac cttgttggtg tgaataattct      120
148 taattcatga gttgtaggga gggatttatg aguccucaga cagaaacaaa agccucagta      180
149 ggattcaaag ctacg                                           195
151 <210> SEQ ID NO: 9
152 <211> LENGTH: 195
153 <212> TYPE: DNA
154 <213> ORGANISM: Artificial Sequence
156 <220> FEATURE:
157 <223> OTHER INFORMATION: Synthetic sequence
159 <400> SEQUENCE: 9
160 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
161 agggggcagg gatggctata tttctgggag caatgcaata aagttacgta gtgtctattt      120
162 atctttgata taagggggat ttccatgggt ttgccttggg atcgtgttca taccgttgta      180
163 ttgaatgatg ctacg                                           195
165 <210> SEQ ID NO: 10
166 <211> LENGTH: 153
167 <212> TYPE: DNA
168 <213> ORGANISM: Artificial Sequence
170 <220> FEATURE:
171 <223> OTHER INFORMATION: Synthetic sequence
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175 agggggcagg gatggctata tttctgggag caatgcaata aagttacgta gtgtctattt      120
176 atctttgata taagggggat ttccatgggt agc                                153
178 <210> SEQ ID NO: 11
179 <211> LENGTH: 201
180 <212> TYPE: DNA
181 <213> ORGANISM: Artificial Sequence
183 <220> FEATURE:
184 <223> OTHER INFORMATION: Synthetic sequence
186 <400> SEQUENCE: 11
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188 agggggcagg gatggctata tttctgggaa aaaagccttc cattttctat ttgtatttgt      120
189 agaaaactag tgtgcttggg agtccctgat gattaaataa accaagattt taccatgact      180

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190 gcaatttttag agagagctag c 201
192 <210> SEQ ID NO: 12
193 <211> LENGTH: 183
194 <212> TYPE: DNA
195 <213> ORGANISM: Artificial Sequence
197 <220> FEATURE:
198 <223> OTHER INFORMATION: Synthetic sequence
200 <400> SEQUENCE: 12
201 gagctcgctc cccgcgcgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
202 aggggggcagg gatggctata tttctgggaa aaaagccttc cattttctat ttgatttgt 120
203 agaaaaactag tgtgcttggg agtcctgat gattaataa accaagatt taccatggct 180
204 agc 183
206 <210> SEQ ID NO: 13
207 <211> LENGTH: 185
208 <212> TYPE: DNA
209 <213> ORGANISM: Artificial Sequence
211 <220> FEATURE:
212 <223> OTHER INFORMATION: Synthetic sequence
214 <400> SEQUENCE: 13
215 gagctcgctc cccgcgcgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
216 agggggcagg gatggctata tttctgggag caaaaagcct tccattttct attttgattt 120
217 gtgaaaaact agtgtgcttg ggagtcctg atgattaaat aaaccaagat ttaccatgg 180
218 ctacg 185
220 <210> SEQ ID NO: 14
221 <211> LENGTH: 182
222 <212> TYPE: DNA
223 <213> ORGANISM: Artificial Sequence
225 <220> FEATURE:
226 <223> OTHER INFORMATION: Synthetic sequence
228 <400> SEQUENCE: 14
229 gagctcgctc cccgcgcgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
230 agggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata 120
231 attttgttta actttaagaa ggagatatac atatggcaag catgactggt ggacaggcta 180
232 gc 182
234 <210> SEQ ID NO: 15
235 <211> LENGTH: 182
236 <212> TYPE: DNA
237 <213> ORGANISM: Artificial Sequence
239 <220> FEATURE:
240 <223> OTHER INFORMATION: Synthetic sequence
242 <400> SEQUENCE: 15
243 gagctcgctc cccgcgcgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
244 agggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata 120
245 attttgttta actttaagaa ggagatatac atatggcaat cactagccct gccttggtta 180
246 gc 182
248 <210> SEQ ID NO: 16
249 <211> LENGTH: 161
250 <212> TYPE: DNA
251 <213> ORGANISM: Artificial Sequence

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253 <220> FEATURE:
254 <223> OTHER INFORMATION: Synthetic sequence
256 <400> SEQUENCE: 16
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258 agggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata      120
259 attttgttta actttaagaa ggagatatac atatggctag c      161
261 <210> SEQ ID NO: 17
262 <211> LENGTH: 1183
263 <212> TYPE: DNA
264 <213> ORGANISM: Artificial Sequence
266 <220> FEATURE:
267 <223> OTHER INFORMATION: Synthetic sequence
269 <400> SEQUENCE: 17
270 gagctcggta cccaaagctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg      60
271 gattgacgtg agggggcagg gatggctata tttctgggag cgaactccgg gcgaatacga      120
272 agcgcttgga tacagtgtga gggagggatc catggctagc attgaacaag atggattgca      180
273 cgcaggttct ccggccgctt ggggtggagag gctattcggc tatgactggg cacaacagac      240
274 aatcggtcgc tctgatgccg ccgtgttccg gctgtcagcg caggggcgcc cggttctttt      300
275 tgtcaagacc gacctgtccg gtgccctgaa tgaactccag gacgaggcag cgcggctatc      360
276 gtggctggcc acgacggggc ttccttgccg agctgtgctc gacgttgtca ctgaagcggg      420
277 aagggaactgg ctgctattgg gcgaagtgcc ggggcaggat ctccctgtcat ctcaccttgc      480
278 tcctgccgag aaagtatcca tcattggctga tgcaatgcgg cggtgcata cgcttgatcc      540
279 ggctacctgc ccattcgacc accaagcgaa acatcgcatc gagcgagcac gtactcggat      600
280 ggaagccggt ctgtgcgac aggatgatct ggacgaagag catcaggggc tcgcgccagc      660
281 cgaactgttc gccaggtcca aggcgcgcac gcccgacggc gaggatctcg tcgtgacaca      720
282 tggcgatgcc tgcctgcoga atatcatggt ggaaaatggc cgcttttctg gattcatcga      780
283 ctgtggccgg ctgggtgtgg cggaccgcta tcaggacata gcgttggtcta cccgtgatat      840
284 tgctgaagag cttggcgggc aatgggctga ccgcttccct gtgctttacg gtatcgccgc      900
285 tcccgattcg cagcgcatcg ccttctatcg ccttcttgac gagttcttct gagcgggtct      960
286 agagtagaca ttagcagata aattagcagg aaataaagaa ggataaggag aaagaactca      1020
287 agtaattatc ctctgttctc ttaattgaat tgcaattaaa ctcgcccaa tcctttacta      1080
288 aaaggattga gccgaataca acaaagattc tattgcatat attttgacta agtatatact      1140
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291 <210> SEQ ID NO: 18
292 <211> LENGTH: 610
293 <212> TYPE: DNA
294 <213> ORGANISM: Artificial Sequence
296 <220> FEATURE:
297 <223> OTHER INFORMATION: Synthetic sequence
299 <400> SEQUENCE: 18
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302 acttccgtac gcagccgcag gaaccgcagg agtggaacga cgacctcgtc cgtctcgggg      180
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304 gcccctggaa ggcacgcaac gcctacgact ggacggccga gtcgaccgtg tacgtctccc      300
305 cccgccacca gcggacggga ctggggtcca cgctctacac ccacctgctg aagtccctgg      360
306 aggcacaggg cttcaagagc gtggtcgctg tcatcgggct gcccaacgac ccgagcgtgc      420
307 gcatgcacga ggcgctcgga tatgcccccc gcggcatgct gcgggcgggc ggcttcaagc      480
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VERIFICATION SUMMARY

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